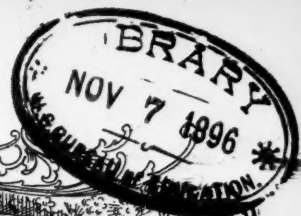


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VOL. XXIX.

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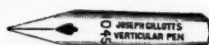
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VOL. XXIX

ST. LOUIS, MO., NOVEMBER, 1896.

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A NOTE OF CHANGE.

From the date of the present number the editorial connection of the undersigned with the "American Journal of Education" ceases. He is compelled to relinquish this and other agreeable tasks beyond the schoolroom, partly because of health impaired from overwork, and partly because plans for literary work demand whatever remnant of energy remains after his direct duties as teacher have been fulfilled.

He bespeaks the continued extension of good will toward the "Journal" on the part of progressive teachers and can but regret the severance of the cordial relations that have existed from first to last between himself and the publishers.

WM. M. BRYANT.

In relation to the above notice, we desire to say that our relations with Prof. Bryant have been very pleasant, and we sincerely regret that the state of his health and other duties compel him to sever his connection with the editorial department of "The Journal." The plans of this journal will continue along the same lines of progress

which were inaugurated some three years ago. We have always had in mind the busy, hard-working teacher, and have ever endeavored to furnish matter that would uplift the educational profession, strengthen the weak and furnish helpful suggestions and methods that may be adapted to use in the school room. Beginning with the next issue, Mr. J. G. Reynolds, who has had charge of the contributions and school room department, and who is well known to many of our readers, will be our managing editor. Mr. Reynolds is not only a practical business man, but he has had the advantages of twelve years' teaching in the public schools, having taught in all the grades, from the country school to the graded and high school. No one knows better than he the needs of the teacher. We have arranged with a number of very able contributors, who have promised articles which we are sure our readers will find of great practical worth.

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Now and then you will meet an individual who complacently supposes he has reflected when in fact he has only deflected. He has moved, not with the radius toward the center of the theme, but with the tangent, from the center, into empty space.

MULTIPLICATION BY DIVISION.

Arithmetic makers assure us that multiplication and division are the inverse and even reverse of each other. Each is always assumed to be the "other" of the *other*. But that in any sane way it could ever be said: Each is the other and hence the "other" of *itself*—this, from the merely arithmetical point of view, is nothing else than the sheerest nonsense.

Yet what would ever induce you to attempt any single case of actual concrete division unless you already saw *one* as *many*? When Henry says to Philip: "Give me a part of your apple," he really says: "Divide—make many of the one"; that is, "multiply by dividing." Fallacy here? Doubtless! But wait; see what follows. The very word "divide" is compounded of the Latin *de* (from) and *vido*, the root of which latter word is in all probability the same as that of *video* (to see). The word "divide," then, means primarily: to-see-separately; that is, to see *one* as *multi-form*. Thus in the very composition of the word it is implied that division is a sort of multiplication.

Take the arithmetical "one." What could be more simple, more devoid of quality, more uninteresting? It is a mere empty form. In fact, without some specific application, without something real to render it "concrete," it is of course a mere abstraction, something wholly unreal.

It is just in this, its abstractness that there is any truth in the usual and unreality, and in *that alone*, statement that the arithmetical "one" has so peculiar, so absolutely unique a "quality" that however many times you may multiply it by itself the product is still the same—that though such multiplication be extended to infinity the result is forever the same quality-

less, ghostly abstraction with which you began.

But, even so, the real truth is that with such ghostly abstraction both as multiplier and multiplicand no real multiplication has taken place. The *process* was only a formal make-believe; hence was there no real *product*.

On the other hand, allow your "one" a concrete significance. Then there is a real multiplier, a real multiplicand, a real multiplication and a real product. Already your arithmetic is struggling against its limits and giving premonition of its higher form as algebra. Your "one times one" is now no longer a meaningless pretense of combining unreal factors. It is an actual combination of elements having a positive value. Hence though your "once one" still has "one," for its product this product presents a new quality which you represent by a "co-efficient"—showing that the initial *efficiency* has been intensified. Your product is no longer merely "one," but "one square."

Similarly, with a concrete "one" taken three times as a factor the quality of the result is raised another degree and you accordingly indicate this heightened quality by means of a further and corresponding co-efficient. Your product is still "one," it is true; but it is not *merely* "one"; it is "one cube." And so on with all the higher powers. The further the multiplication is carried the richer the qualitative result.

And yet all this multiplication of "one" by "one" is after all only within itself. The wider the range the combination of "one" *with itself*. Which "combination" of "one" *with itself* necessarily implies a primitive *division* of "one" *within itself*. The wider the range of this multiplication the more deep-reaching must the primal di-

vision prove to have been. In fact multiplication and division now appear as nothing else than complementary aspects of the fundamental process of *differentiation*. Let this go on to infinity and you will have an *infinitely self-differentiated* "ONE."

Let us follow this algebraic process one step further. Take the formula $\frac{1}{1} = 1^0$. If, as usually assumed, the numerator in the first member of the equation is the merely abstract "one"; and if the denominator simply stands for mere "nothing," then manifestly no division can take place and there can be no quotient.

If, on the other hand, the symbols are regarded as representing real, concrete qualities, then the formula becomes highly significant. It becomes, in short, one of the most extraordinary and perfect symbols of an absolute and uncompromising metaphysics.

Mathematics is the science of Quantity; and as such deals only with the finite. It is, therefore, limited and hence comprehended within the Infinite. But also in the formula we are considering it may be fairly said to represent and comprehend the Infinite—though it be indeed only in the momentary flash of a single symbol.

Notice that the symbol assumes a case of division of which the quotient is "one" raised to the infinite "power," i. e., to the infinite degree of Reality. The very simplicity of the symbol puts this interpretation beyond all equivocation or evasion.

What then must be the interpretation of the dividend and the divisor? If there is any real division both the terms of the division must be real. As the present writer has elsewhere pointed out (the *World-Energy* and its *Self-Conservation*, p. 104) if this zero stands for mere "nothing" the whole formula is meaningless.

If it stands for any finite quantity then the "one" as divided must be infinite in value; otherwise the formula is absurd.

What meaning, what "value" can the zero have? Take a hint from the ((centegrade) thermometer. In that, zero represents the phase of transition—from liquid to solid, from solid to liquid. It stands for absolutely unstable equilibrium; or, in other words, for absolute predisposition to act. That, then, is our divisor.

But the "one," as our dividend, is thus, by the very terms of the formula, seen to be necessarily infinite. So that the zero as "divisor" proves to represent nothing else, and nothing less, than the original and absolute tendency toward activity on the part of the infinite ONE. And with such absolute tendency toward activity on the part of the infinite One, and because, as infinite, as all-inclusive, it can only act upon itself, its very activity must necessarily result in its own *infinitely manifold self-differentiation*. But such self-differentiation is nothing else than the highest form of self-division. Yet also it is the process of the complete self-realization of the primal One—i. e., the process of multiplying to infinity the real phases of its own self-contained (and hence all-containing) existence.

And does not natural history confirm this bit of dizzy metaphysics which has somehow found its way into (unless it is the natural outgrowth of) the very heart of algebra? What is more common in the lower degrees of life than multiplication by fission—i. e., by division? Nay this, in one form or another, is the invariable rule throughout the whole range of life. Not only can you trace it through the vegetable kingdom and through the animal kingdom, but also through the spiritual

realm. The individual mind must divide its time, divide its attention, among manifold objects of interest if it would multiply its own spiritual possessions. And is not division of labor the prime condition of multiplying in highest measure the means of human subsistence—the food, the clothing, the shelter of the race? Is not the same principle of division and concentration applied in the world of science and literature and art with the direct purpose of attaining the richest sum of products serving the highest needs of the expanding life of the soul?

Look where you will and you will find that we divide to obtain our richest products, and multiply that we may realize the quotients reaching the highest powers. In the concrete world division is but a way of multiplication and multiplication but a way of division. In other words, these are merely complementary aspects in the total process of the great miracles of the world in which the "loaves and fishes" are but the elements endlessly multiplied by division, to the end of satisfying the ceaselessly multiplying wants of ever-multiplying throngs of men. And always that which remains over is vastly greater than that with which the division began.

"HIGH SCHOOL EXPANSION."

Under this heading the "Missouri School Journal" takes the "American Journal of Education" to task on account of an editorial in the September number. The editorial in question was on the subject of the growth of the High School. It took as a starting point President Angell's address at the quarter-centennial celebration of his administration as head of the University of Michigan. We were especially encouraged to find so widely recognized an authority ad-

vocating what had more than once been urged in this journal; namely, that the manifest destiny of the High School is to extend its course so as to complete the work now done in the college beyond the actual present high school course.

The high school would—and we have no doubt that in due time it will—thus become a fully developed people's college in which pupils will be able to complete the whole of the prescriptive work of education, leaving the State University free to devote its whole energy to graduate courses—i. e., to university work properly speaking.

We believed then, as we still believe, that the high schools of our cities and larger towns are even now ready for this extension of the course. It is only the next further step in the normal development of the public school system. Nor do our good friends of the "Missouri School Journal" really direct their criticism upon this point. What they appear to object to is the "expansion" of the high school (we should rather say; its distension) by adding further subjects to the course. And upon this point we need only refer them to the editorial they assume to criticize for proof that what they criticize is not in the editorial. Surely the high school course can be expanded by giving further time to the deepening of knowledge and the maturing of culture within the limits of the present range of subjects. What more is needed to expand the high school into a true people's college? We join heartily in the protest "in the name of honest education" against the superficiality that is inevitably involved in overcrowding the course of study; and this whether in the kindergarten, or in the university, or in any of the intervening grades. Similarly we are bound to

protest, in the name of honest educational journalism, against singling out and naming a given discussion of an educational theme and then proceeding with a criticism of some lunacy or other wholly foreign to such discussion, but upon the tacit assumption that such lunacy is of the very substance of the article in question.

The "American Journal of Education" believes that education is predestined to become more and more the absorbing work of the world. It believes equally in the expansion of the high school as one necessary aspect of the evolution of educational interests.

Nor is this a mere matter of dreaming and prophecy. In Iowa and elsewhere the county high school is already an accomplished fact, and township high schools are not likely to be long lacking.

As "The School Review" (October) puts it, "City advantages for country children is the rallying cry of an educational campaign that has already captured several States and is bound to sweep the country." And one of the most significant evidences of the universal awakening to the necessity of higher as well as elementary education is to be found in the fact that Nebraska already has a law by which pupils who have completed the course in a neighborhood having limited school facilities may be sent to a public school elsewhere, the tuition to be paid by the county in which the pupil lives. Of similar import is the striking fact, shown in the last report of the National Commissioner of Education that within four years (1890-94) the number of public high schools in the whole country increased from 2,771 to 3,964, while even the private schools of like grade increased from 1,714 to 1,982. This to say nothing of the "expansion" of individual schools in number of years required for

completing the course, as well as in the course to be completed. Such "growth of the high school," the "American Journal of Education" has for years been advocating and rejoices to see in such rapid process of accomplishment. We are sure also that our friends of the "Missouri School Journal" are in no way opposed to this. In the hurry and worry of their work they read hastily, saw "one" as "other," and so in sheer weariness furnished unawares a fine example of the "psychologist's fallacy," exclaiming: "Ghost — there!" when really it was only a case of ghost "here"—in the seer's own troubled brain.*

*The views of the present editor of this "Journal" as to over-crowding the course of study may be found in fairly explicit form in his essay on "Modern Education," published by Perrin & Smith, St. Louis.

The "School Review" for October gives the following significant item on the extension of the high school: "The last legislature in Nebraska enacted a law which provides for the free attendance of students whose education cannot be profitably carried further in their own districts, at some neighboring public high school, tuition at the rate of fifty cents per week being paid to such high school by the county in which the student resides. The law is very popular in most counties and has resulted in bringing into the high schools of the State, even during the first year of its operation, more than two thousand students from the country districts, thus materially increasing the revenues of the high schools. The law stimulates the high schools to do better work and so tends toward a better standard for them. Students must have a certificate of proficiency in the common school work from the County Superintendent, and this

tends to encourage better instruction in these schools. The State Superintendent determines annually what high schools are properly equipped as to teachers, apparatus and course of study to receive students under the law."

Why shouldn't Missouri follow so admirable an example?

In Wisconsin the State provides free high schools, adding new ones from year to year in various parts of the State.

"Those who always lay themselves out for enjoyment would fain dispense with all judgment."

KANT, Kritik of Judgment.

"Earth's ugliest walled and ceiled imprisonment

May suffer, through its single rent in roof,

Admission of a cataract of light Beyond attainment through earth's palace-panes

Pinholed athwart their windowed filigree

By twinklings sobered from the sun outside."

—Browning. Red Cotton Night-cap Country.

A new edition of the works of Thomas Carlyle, to be called the Centenary edition, is announced by Charles Scribner's Sons, in connection with Chapman & Hall of London. There will be included in this edition a volume of essays and minor writings never before published in a collected form, and some new portraits. It will be beautifully printed and marvelously cheap. The first volume will appear in October.

The man who has a thousand friends
Has not a friend to spare;
But he who has one enemy

Will meet him everywhere.

—R. W. EMERSON.



POETRY OF NUMBERS.

BY PROF. EDGAR BEHNE,

Nothing is less poetical than numbers, according to general belief; yet in this case like in a thousand, general belief prejudices.

Indeed, poetry being a way of moving souls, by beauty of combined perceptions and thoughts, effort jars. Therefore the sublime into harmonious vibrations, any but illiterate minds that composed and sang the first poems of former times certainly judged writing exceedingly prosaic, just as the gypsies, who still enchant our ears without being able to read a single bar of music, would be disgusted with the technical algebra of sharps and flats.

But we have made progress: our poets and musicians do not call any more reading unpoetical, for they know it well enough to do it easily.

Ease! There lies beauty; seldom elsewhere.

Numbers are unpoetical because we do not comprehend them. A page of music or poetry, that would give a headache to the vulgar, could move to tears a musician or a poet, who does not only understand the signs, but hears the sounds that sing through his head and heart. We must learn to perceive in figures majestic vastness, marvelous smallness and perfect harmony. We must learn to read them easily.

We cannot read figures easily because our way of reckoning is an antiquated Chinese or rather French puzzle, brought into England by the Normans of old, and

which the French themselves long ago cast away. Let us get rid of it also and simplify business.

Things must be put always in the same order, to have them at hand. Your ideas, too. Do not throw them one here and the other there in your brains; put them all nicely together, in the same order—mind!—and you will understand them by comparing them.

We count, like nearly all men, by means of our ten fingers and thumbs. Well, let us then count always by tens, hundreds, thousands, nothing but tens and ten times ten indefinitely. Thus we can, on our fingers, count and perceive immensity.

Draw a line one inch long and divide it in two parts; cut each part in two, each of these in two again, and so on twice more; your inch will be divided into thirty-two parts.

Now draw a line as long as five of these thirty-seconds of an inch.

Cut this line in two, and each part in two again.

This small fraction, worth about one thirty-second of an inch and the fifth of it, will serve us to measure the world. This little length is called a **millimetre**.

A hair-breadth longer it would be more accurate; but it is good enough as it is.

Draw in a row ten of these millimetres.

Set again in a file ten tens, or a hundred millimetres.

Mark again somewhere a length of ten hundreds or a thousand millimetres. If your eye and hand are right you hit on 3 feet, 3 inches and 3 eighths of an inch, less a hair-breadth.

So you really see what are ten, a hundred and a thousand.

A thousand millimetres is called a metre.

Go on: measure ten metres on the ground, with a string. Mea-

sure ten times ten, or a hundred metres.

Now count how many of your ordinary steps are in a hundred metres. To render the work easy, do not notice each foot, but only the movement of your left one. I say the left, because they drill soldiers to start with their left foot.

That manner of marking double steps was used by the Romans. Our word mile comes from the Latin mille, which means a thousand (double steps).

But enough of the old miles. Measure on the road a length of a thousand metres, which is about one quarter of an hour's quiet walk. A thousand metres is called a kilometre. It is almost $\frac{5}{8}$ of a mile, or five furlongs.

The kilometre is just as much longer than the metre, as the metre is longer than the millimetre: a thousand times. A metre is a thousand millimetres. A kilometre is a thousand metres. It is a thousand thousands of a millimetre, or a million millimetres.

In walking quietly for a quarter of an hour, you pass along a million millimetres. So you perceive what a million is.

Now suppose the world to be a million times smaller than it is, a kilometre (a quarter of an hour's quiet walk) becoming as short as a millimetre. How then would the earth appear?

The earth, a million times smaller than it is in length, height and breadth, would be like a balloon as large as a house of four stories, fully forty feet high, nearly 12 metres $\frac{3}{4}$ or 12m. 750 (representing 12,750,000 metres or 12,750 kilometres).

The three-quarters of that balloon would be wet, that is to say covered with a few millimetres, less than ten, of water, about as deep as that which you spill on the floor, when you wash your

face. Those few millimetres would represent as many kilometres of depth of the ocean. The most gigantic mountains stand about as high as the abysses of the seas descend deeply. Those enormous distortions would be similar, on a house, to decayed paint. Nor would the loftiest clouds rise much more. They would cover that great balloon like irregular patches of white muslin.

The deepest pits bored through the crust of the earth would sink one millimetre (representing one kilometre). Deeper on we know nothing.

Italy would be precisely as large as the boot of a very tall man, and the great American lakes like water spilled on the floor in pools which you could cross without jumping.

The moon, like a balloon only of the size of a one-story house (nearly 3 metres 1-2, standing for 3,500 kilometres) would turn in a month around the earth at a distance of less than 2 furlongs or 400 metres (representing 400,000 kilometres).

The sun would be a burning mountain (diameter more than 1 kilometre 1-3, nearly 1 kil. 400 metres, representing 1,400,000 kilometres), distant from the balloon that would be the earth, like St. Louis from Jefferson City, or Philadelphia from Baltimore (nearly 150 kilometres, indicating 150,000,000 of the same).

Now let us imagine that small figure of the world becoming itself smaller one million times also. Then the sun will be a little dazzling spark, scarcely more than 1 millimetre 1-3 in diameter (nearly 1,400,000 kilometres). The earth, no more so large as a house, is like those grains of dust that fly about and are so small that you only can see them when a sunbeam, entering through closed shutters,

lights them alone in a dark room.

That impalpable particle of dust, our earth (.01 millimetre, standing for 10,000 kilometres), flies in a year around the glaring little spark, our sun, at a distance of nearly 150 millimetres or six inches (150,000,000 kilometres). The moon could hardly be detected at all, and would waltz in a month around the earth, quite close to it, at less than half a millimetre (.4 millimetre, meaning 400,000 kilometres).

The radiant little spark, the sun, with grains of dust, our earth and other planets, revolving round it, fall about in space, in emptiness. There is no great danger of their knocking against another grain, for the next little sparkle or star is about ten kilometres distant (really 10,000,000,000,000 kilometres).

And further, and further, other sparks shine wide apart. Far off, far off again, other stars burn in the night, and still others, thousands, millions, further on, on, on, endlessly.

A house is as much smaller than the earth, as a grain of dust is smaller than a house. Thus a house on the earth is like a grain of dust on a house.

And if whole cities, whole empires, were blown away from the earth, it would be like a little dust delicately wiped from the wall of a house.

Nice, France.

A big modern department store is almost a city in itself. Just think what you can buy at Famous, corner Broadway and Morgan—clothing, shoes, millinery, ribbons, notions, fancy goods, hosiery, underwear, corsets, gloves, hats, caps, mackintoshes, cloaks, wraps, furs, suits, wrappers. We also carry a complete stock of house furnishing goods. Our prices, as every one knows, are positively the lowest in the city. Special discounts to teachers, and we will open an account with you if you wish.

THE COLONIAL PERIOD IN U. S. HISTORY.

BY T. J. MCDONOUGH.

A teacher uniformly successful in her profession recently confessed to me her inability to awaken an interest in her pupils in the study of Colonial history. She said her pupils were alive to the incidents of the discovery of America, enthusiastic over the struggles of Washington and his compatriots, keen to follow the development of the nation from the Revolution hitherward, but no amount of effort could interest them in the Colonial period. A little judicious questioning convinced me the teacher herself, though posted in cold facts pertaining to this era, was in no wise in sympathy with the pioneers who settled the Atlantic coast, hence the pupils had no source from which to draw inspiration. Her information was drawn almost entirely from the pages of text books. The Life of Columbus, Mrs. Ellet's "Women of the Revolution," and a number of other works furnished her food for thought on other periods, but she had read little on the Colonial period. And she was not alone in this.

The city teacher whose reminiscences are bounded by scenes, manners, and persons of the period since the civil war lacks a source of enthusiasm which would do much toward enkindling the necessary interest in her pupils for this rich epoch in our country's story. To her the Colonial period is a bit mythical—a page from mediaeval history. To make it a concrete reality, colored with life tints, and imbued with the poetry of motion, is beyond her power.

And yet, properly told, the tale of our pioneer ancestors is bright

with as pleasant a color as some old illuminated manuscript detailing the career of knight errant or crusader. Feats of personal bravery, of heroic rescue, of rigorous self-denial brighten every page and thrill the heart with sympathy for the rugged characters who with some faults possessed an abundance of the manly virtues which all prize, even though they possess them not.

The struggle with savage beasts and with savage men; the felling of forest oaks, and the profitless toil of tearing from the earth giant roots, that their children might have a comfortable productive farm-home as a legacy from the iron-handed sire; all can be made replete with interest. That these men who wrought such wonderful deeds in triumphing over seemingly insurmountable obstacles, in reclaiming the stubborn soil from the state of nature, in making possible our flourishing, teeming cities and our modern civilization, lived so short a time ago and disappeared so recently argues much in favor of the teacher's possibility to bring these scenes and deeds palpably before the child. True, their sun has disappeared beneath the horizon, but the crimson streaks consequent on his departure still illumine our sky and tint the cloud banks with scarlet and purple and orange, and leave the memory busy with the daring story.

The hunting-jacket and the coon-skin cap; the powder-horn and the long rifle; the ox team and the bounding red deer have disappeared, but so recently that many of the adult of this generation remember them and love to tell of them around the winter fire. They form a link with which we are connected with the traditionary period before the Revolution.

Even to-day, if we leave the railroad and plunge into the

"backwoods districts," we are reminded of pioneer life by the log cabin and its traditionary surroundings. Perhaps it might not prove an unessential element in a well-rounded education were some of our urban teachers to forego the annual trip to Niagara or the Rockies and spend one vacation among the Bald Knobs or along the St. Francis. With what different and healthy inspiration would such teachers return to the school room! How their pupils would have memories of this period, enlivened through association of ideas derived from the experiences of such teachers' outing!

Columbus and Cortez and Cabot and Cartier and Champlain and Coronado, Drake and De Narvaez and DeSoto and Hudson finish their wonderful labors and sleep with the fathers.

America lies a discovered continent. Principalities and syndicates plunder and oppress Europe. Freedom and Manhood, wearied with the vain struggle, come to rest awhile in the stern wilderness. So this period opens.

Then begins the wonderful experience of white hunter and red Indian; of deer, and turkey, and buffalo; of panther, and bear, and wolf; of Puritan and Cavalier; of Catholic and Quaker and Huguenot and Moravian.

Then ensues the tale of famine and massacre, of siege and rescue, of French and Indian duplicity, of English counterplot and cruelty. Now a French-led Indian tribe burns an English village and leads captive the survivors into the wilderness; now an English Admiral forces a French settlement away from home and kindred and property and scatters the people a thousand miles along the southern coast, eliciting the pathetic tale of Evangeline.

Where in all the annals of time can the true teacher find richer

material to awaken a lively interest in the minds of youth than this bit of American history? What writer of romance can win from a fertile imagination anything more enchanting than this reality? It seems to me that not even the heroic deeds of the Revolutionary fathers are brighter or more stirring.

Topical analyses and formal methods are hardly needed here if the teacher is fully alive to this pioneer history. She can make it burn itself in letters of fire into the brain of youth so that not a single important detail is wanting. The important, essential is that the teacher feels the enthusiasm of an evangelist in the work. She must keep the totality of the period before her mind's eye. She must not run wild on a single detail, but preserve to her own comprehension a united and concrete whole. The interest she desires to awaken in the student must first be enkindled on her own altar. Then, can she succeed? She can and will.

East St. Louis, Sept. 28, 1896.

FAMOUS PROVERBS.

Russian—Pray to God, but continue to row to the shore.

Sanskrit—Silence is the ornament of the ignorant.

Chinese—There are two good men—one dead, the other unborn.

Modern Greek—Two watermelons cannot be carried under one arm.

Persian—One pound of learning requires ten pounds of common-sense to apply it.

Arabian—It is hard to chase two hares at the same time.

If you want to be well informed, take a paper. Even a paper of pins will give you some good points.—Exchange.

Current Events

N. E. A.

The next meeting of the National Educational Association will be held at Milwaukee, Wis., July 6-9, 1897. Just why Milwaukee was chosen we have not been able to ascertain, but we suppose the Executive Committee had good and substantial reasons for choosing this city over the many aspirants for the meeting.

THE FLORIDA HURRICANE.

The great storm which swept over the West Indies and the Atlantic Coast on September 29 and 30, caused great destruction to property and loss of life all along its path. Across Florida it left a line of wrecked villages—Cedar Keys, Fort White, Hilliards, and others. Many were killed on the Sea islands, that suffered so severely from the storm of 1893. Great damage was done in Savannah. At Macon, Charleston, Raleigh, and Richmond the storm made great havoc.

ADVANCE IN WHEAT.

A marked advance in the price of wheat has been shown of late, due principally to the failure of the Russian, Indian, and Argentine crops. Europe must have our wheat, flour, and corn and it cannot be shipped half fast enough. There has, therefore, been a race this way of the freight carrying steamers. England prefers to buy her wheat in India and Argentine, but the drouths there have reduced the crops to such an extent that they will not anywhere near fill the demand. It is too bad that this rise could not have come before so many of the farmers had sold their wheat. The speculators seem to make the greatest profit.

GUAYAQUIL BURNED.

Guayaquil, the capital of Ecuador, has suffered severe loss from a destructive fire. The principal part of the city has been laid in ashes. It is estimated that the loss amounts to about \$54,000,000, besides many lives were lost. It seems pretty certain that the great fire was not accidental; the torch was applied designedly by incendiaries. One man was caught in the act, and summary punishment was inflicted upon him by enraged citizens.

Though there is much excitement on the whole good order prevails. Prompt measures are being taken to relieve immediate distress. The authorities are earnest in their endeavors to provide for the wants of the helpless and destitute.

THANKSGIVING DAY IN CANADA.

The Dominion Government has decided to proclaim the last Thursday in November, the 26th inst., as Thanksgiving day throughout Canada. Canada formerly appointed Thanksgiving day earlier in the month, and the ground on which the change is made is that the United States generally designates the last Thursday of November as Thanksgiving day in that Republic, and as the suspension of business in the United States on that day correspondingly affects business interests of Canada, it was decided to appoint Thanksgiving day on a similar date to that on which it is generally held in the United States.

A NICARAGUAN CONSPIRACY.

A plot to overthrow the Nicaraguan Government and kill President Zelaya has been discovered and thwarted just on the eve of its execution. One of the conspirators was ex-President Cardenas. The conspirators belonged to the party that helped Zelaya in putting down the last rebellion, but turned against him because they were not given a part in the Government.

GOLDEN STREETS.

In this day when there is so much talk of gold and silver, it may be interesting to know that there is a city in the United States that has streets literally "paved with gold." The granite used for paving the streets of Prescott, Arizona, yields four dollars in gold and twenty cents in silver to every ton, so that in time, when less expensive methods of reducing ores are used, it may pay the city to tear up and crush its street pavements.

COAST AND GEODETIC SURVEY.

The Coast and Geodetic Survey has finished the most stupendous geodetic survey ever undertaken, and which gives to the United States the longest base line on which to establish subsequent surveys in existence in the world. It is known as the transcontinental arc, and lies along the thirty-ninth parallel of north latitude, extending from

ocean to ocean. The arc at sea level for the entire distance—following the curvature of the earth's surface—is 2,625.8 miles in length, and extends from a point on the Atlantic coast ten miles south of Little Egg Harbor Lighthouse below Cape May, to a point six miles north of Pinta Arenas Lighthouse, on the Pacific coast, several miles above San Francisco.

A NEW GUN.

The Navy Department has ordered fifty of the Colt automatic guns. These are magazine rifles, which can be automatically fed with cartridges, and will discharge four hundred bullets a minute so long as cartridges are supplied, the firing mechanism being operated automatically by powder gas. The gun weighs only forty pounds, and when used on land it is to rest on a tripod provided with a saddle on which the marksman sits. All the ships of the navy are to be furnished with these guns, and the War Department has ordered them to be tried with a view to adoption by the army.

Here are the nine longest words in the English language at the present writing. Can you pronounce them?

Incomprehensibility.
Subconstitutionalist.
Philoprogenitiveness.
Architectonically.
Disproportionableness.
Velocipedestrianistical.
Anthropophagmian.
Transubstantiationist.
Antitransubstantiationist.

The examiner wished to get the children to express moral reprobation of lazy people, and he led up to it by asking them who were the persons who got all they could and did nothing in return. For some time there was silence, but at last a little girl who had obviously reasoned out the answer inductively from her own home experience exclaimed, with a good deal of confidence: "Please, sir, it's the baby."—Boston Transcript.

DEPARTMENT OF EDUCATION.

Circular of Information.

THE SCHOOL DAY.

Many letters have been received at the Department of Education asking for an interpretation of the first clause of section 8,009, R. S., 1889, as to what shall constitute a school day.

By a custom long established in Missouri, our public schools open at 9 o'clock, close at 12; open again at 1, 1:15, or 1:20 and close at 4 o'clock. Usually in country schools and small town schools the afternoon session opens at 1 o'clock, and, as a rule, the larger town the later the opening of the afternoon session. More than 95 per cent of all the schools of the State give about 15 minutes for recess at or near the middle of the forenoon session and another 15 minutes recess at or near the middle of the afternoon session, and the people and children will not have it otherwise. In a few schools two recesses are given each half day. But, as to the interpretation of the phrase "six hours actually occupied in school work," I take it that this phrase means from 9 o'clock till 12, and from 1 o'clock till 4 o'clock, and that rationally construed the 15 minute recess is just as much "actual school work" on the part of the teacher as any other 15 minutes of the day; for during these 15 minutes the teacher must be in or about the school room attending to the heating and ventilation, and responding to the needs of the children in and about the school room. To argue that the teacher should spend actually six hours in announcing, explaining and conducting recitations would, in my judgment, be an irrational and unnatural interpretation of this statute. In this opinion, Hon. R. F. Walker, Attorney-General, concurs.

It should be mentioned, however, that nothing in this opinion is designed to interfere with that wholesome custom commonly accepted by school boards and teachers which requires the presence of the teacher in or near the school room for 15 or 20 minutes prior to the regular opening of each half day session of school.

Very respectfully,

JOHN R. KIRK,

State Supt. Public Schools.

Jefferson City, Mo.

NON-PARTISAN SCHOOL BOARDS.

To the Superintendents, Principals and Teachers of the Graded Schools of Missouri:

At the 34th annual session of the Missouri State Teachers' Association, held at Pertle Springs, June 23, 24, and 25, 1896, Superintendent Greenwood offered the following preamble and resolution:

"Whereas, The public schools of the State of Missouri are supported and maintained for the purpose of educating all the children at public expense, and

"Whereas, The introduction of partisan politics and the spoils system in the election of school directors and the evils flowing therefrom are a most pernicious influence operating in many school districts of the State, therefore, be it

"Resolved, That in all graded schools having six directors, the school law should be so amended that not more than three members shall belong to any one political party."

This resolution was adopted and the undersigned were appointed a committee of three to take measures for securing such legislation as will rid the schools from the evils which, in so many cities and towns, cripple their efficiency and to a great extent defeat the purpose for which they are established.

It would be superfluous to submit to you an argument designed to prove the necessity of legislation of this character. You know fully as well as do we what injury our school system has received and is receiving at the hands of the partisan politician and of the spoilsman. A due regard for the perpetuity of our civil institutions should arouse every patriot to action in order that these safeguards of our common country, the free public schools, should no longer be in jeopardy from men to whom self interest is the paramount consideration.

We, therefore, beg that you will to the utmost of your ability, by laying this matter before your school boards, by discussing it among the people in your several communities, by pressing it on the attention of your senators and representatives, by bringing it to the notice of the public through the local press, if you can secure the co-operation of this powerful agency, aid us in

the important task which you and your representatives have imposed upon us.

Respectfully yours,

C. W. THOMPSON,

G. V. BUCHANAN,

R. B. D. SIMONSON.

NAMES OF STATES.

Maine—Pine Tree State.
New Hampshire—Granite State.
Vermont—Green Mountain State.
Massachusetts—Old Bay State.
Rhode Island—Little Rhody.
Connecticut—Nutmeg State.
New York—Empire State.
New Jersey—Jersey Blue.
Pennsylvania—Keystone State.
Delaware—The Diamond State.
Virginia—Old Dominion.
West Virginia—Pan-handle State.
North Carolina—Tar State.
South Carolina—Palmetto State.
Georgia—Empire State of the South.
Florida—Peninsular State.
Mississippi—The Bayou State.
Louisiana—Creole State.
Texas—The Lone Star State.
Arkansas—Bear State.
Tennessee—Big Bend State.
Kentucky—Corn Cracker State.
Ohio—Buckeye State.
Indiana—Hoosier State.
Illinois—Prairie or Sucker State.
Michigan—Wolverine or Lake State.
Wisconsin—Badger State.
Iowa—Hawkeye State.
Minnesota—Gopher State.
Kansas—Garden of the West.
Colorado—Centennial State.
Nevada—Sage Hen State.
California—The Golden State.

A CHRYSANTHEMUM.

A chrysanthemum that grows
Brightest at the edge of frost;
Loving sunshine so it glows
For the glory summer lost;
Loving fulness so it blows
Double, double, for the rose.
Generous, sweet, atoning flower;
Making up for autumn's pain
With great bounty; telling cost
Only as from cloudy hour,
Or from chilling wind or rain,
Some tang of the bitter kept
Hath into fine fragrance crept.

—Elizabeth Glover.



DAKOTA QUESTIONS.

The following examination questions and answers are from the S. D. Educator. They will show the requirements for a county certificate in that State:

AMERICAN LITERATURE.

1. Tell the story of Evangeline.
2. Quote a few lines from the "Building of the Ship," and name the author.
3. Name a famous juvenile work by each of the following: Alcott, Andrews, Burnett, Hawthorne, Kipling.
4. Name the author of each of the following: Bracebridge Hall, Uncle Remus, The House of the Seven Gables.
5. Who was the author of "A Century of Dishonor," and what the purpose of the book?
6. Why is Longfellow's poetry so popular?
7. Who was the Quaker Poet?
8. What peculiarity marks all of Hawthorne's work?
9. Speak of the Cary sisters.
10. For what work is Lew Wallace noted?

ANSWERS.

1. The story of Evangeline dates back to 1755 when Acadia, now Nova Scotia, was inhabited by the French, a simple minded peaceable people who only desired to be left in possession of their lands and homes.

As the poem expresses it:
 "Neither locks had they to their doors,
 Nor bars to their windows;
 But their dwellings were open as day
 And the hearts of their owners.
 There the richest were poor.
 And the poorest lived in abundance."

The English coveting their possessions and inspired by religious hatred conceived the plan of scattering the Acadians over the country so as to prevent their return. Through stratagem this was carried out. They were

seized and carried away and in the confusion and haste many families were separated forever. That of Evangeline Bellefontaine was the typical one chosen to represent the sad experience of many. The early part of the poem describes her innocent, saintly life as head of her father's household, and her betrothal to Gabriel La Junesse—"Who was a mighty man of the village and honored of all men."

In sharp contrast comes the terrible tragedy. The ruin and desolation of their town and home. The sudden death of her father and separation from her lover.

For long years she seeks him through forests and prairies of this wild new continent, hearing of him, passing him, yet ever missing him, until she finds him dying in a hospital a victim of cruelty and injustice yet.

"Purified, strengthened, perfected and rendered more worthy of Heaven."

2. Longfellow is author of "Building of the Ship."

"Thou, too, sail on, O ship of State,
 Sail on, O Union strong and great!
 Humanity with all its fears,
 With all its hope of future years
 Is hanging breathless on thy fate."

3. A famous juvenile work of each of the following is,—

Alcott—"Eight Cousins" and "Rose in Bloom."

Andrews—"Seven Little Sisters."

Burnett—"Little Lord Fontleroy."

Hawthorne—"The Wonder Book."

Kipling—"Jungle Stories."

4. The authors of each of the following is:

Bracebridge Hall—Irrving.

Uncle Remus—Harris.

House of Seven Gables—Hawthorne.

5. The author of "A century of Dishonor" is Helen Hunt Jackson. It was written showing the dishonor of our dealings with American Indians.

6. Longfellow's poetry is popular because of the purity and simplicity with which it portrays human life; putting everyone's thoughts and feelings in fitting and beautiful words.

7. John G. Whittier is the Quaker Poet.

8. All of Hawthorne's stories are strange and mysterious, having the shadow of crime committed by themselves or their ancestors. The black drop is removed by love and repentance. Often this is shown in hidden allegory. In style his writings are exquisitely delicate in expression and perfect in form. He took infinite pains in use of words and corrected and polished his sentences till he well deserves the name of "literary artist."

9. Alice and Phoebe Cary, the sweet singers of the west, "whose lives and songs have a memory in the hearts of the American people." They wrote both prose and poetry. Alice representing home memories. Phoebe alternately sparkling with wit and bringing tears by the pathos of her lines. Alice died in 1871 one year after her sister.

10. Lew Wallace is noted for writing the novel "Ben Hur."—Mrs. Martha I. Turney, Supt. Aurora County.

UNITED STATES HISTORY.

1. Locate Bunker Hill, Ticonderoga, Faneuil Hall.

2. Where and when was the treaty of peace signed which acknowledged the independence of the U. S.?

3. State the conditions which caused the expression "Millions for defense but not one cent for tribute." Who uttered the expression?

4. What was the effect of Perry's celebrated victory?

5. Locate the following places noted as battle fields: Bull Run, Winchester, Pittsburg Landing, Island No. 10, Antietam.

6. Describe the contest between the Merrimac and the Monitor. State effects of the contest.

7. Give a brief general description of the battle of Gettysburg.

8. What is the XIII amendment to the constitution of the U. S.?

9. Explain the trouble arising over the election of R. B. Hayes as president.

10. Name the parties that have already nominated men for presidency and vice-presidency.

ANSWERS.

1. Near Boston, Mass. On the west bank of Lake Champlain near the outlet of Lake George. In Boston, Mass.

2. Paris. September, 1783.

3. At the beginning of the administration of John Adams the French were dissatisfied with the neutral attitude of the United States with reference to the war between England and France. French privateers, with the tacit consent, if not the open encouragement of the government, preyed upon American shipping. The American representatives in Paris were given to understand that these depredations could be stopped and war averted by the payment of a considerable sum of money. Chas. C. Pinckney, one of the representatives gave utterance to the sentiment referred to.

4. It checked the advance of the British along the lakes and saved to the United States the region called then the Northwest Territory.

5. Bull Run, across the Potomac from Washington a few miles beyond Alexandria. Winchester, in northern Virginia. Pittsburg landing, in southern Tennessee on the Tennessee river. Island No. 10, in the Mississippi near the southwest corner of Kentucky. Antietam, in Maryland near Harper's Ferry.

6. The Merrimac was a United States ship of war which had been seized in the navy yard at Norfolk, by the Confederates, and covered with a heavy plating of iron. She was sent to destroy the Union war vessels at the mouth of the James river. Her first days work, March 8th, 1862, was to destroy the Cumberland and the Congress. Returning the next day to complete the work she was met by the Monitor, a small iron vessel, with but little above the water, except a round iron turret containing two guns. The Merrimac was unable to destroy her small antagonist and was compelled after a terrible battle to go back to Norfolk in a damaged condition. This victory was regarded as of the highest importance, as had the Merrimac not been repulsed at this time her next attack would probably have been upon Washington. The building of ships of war was greatly changed by this object lesson.

7. Lee, with 70,000 men, invaded Pennsylvania, intending to strike Harrisburg, and to go from there to Penn-

sylvania. He was opposed by Meade with 80,000 men at Gettysburg. The two armies were stationed upon eminences about a mile and a half apart. The first day's battle was the result of an accidental encounter between the Confederate van and some Union Cavalry, in which the Federal troops got rather the worst of it. On the second the rebels were repulsed by the Union left, but gained some advantage on the right. The third day's battle was signalized by the celebrated charge of Pickett's Confederate forces up Cemetery Ridge. They were beaten back with fearful losses, and Lee retired across the Potomac.

8. Neither slavery nor involuntary servitude except as a punishment for crime, whereof the person shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

9. In 1876, on account of alleged fraud, there were conflicting election returns from the States of South Carolina, Florida and Louisiana, also in the case of one elector from Oregon. Congress agreed to refer these election returns to a Joint Electoral Commission, consisting of five Senators, five Representatives and five Judges of the Supreme Court. This commission decided that there were 185 votes for Mr. Hayes and 184 for Mr. Tilden.

10. Republicans, Democrats, Populists, National Silver Party, Prohibitionists. (Since the examination, Gold Democrats.)—Irwin D. Aldrich, Supt. of Schools, Grant County.

GEOGRAPHY.

1. Name five countries of South America and give one important product of each.

2. Make a sketch of the Mississippi River and four of its branches. Name these branches.

3. Define latitude, longitude. What is the latitude of the arctic circle? Of the tropic of Cancer? Of the North Pole?

4. Where and what is each of the following: Venice, St. Elias, Java, Iceland, Calcutta?

5. When it is 12 o'clock noon by standard time in New York City, what time is it at Chicago? At San Francisco?

6. Mention five seaports in Europe to which steamers leaving New York regularly sail.

7. Make a diagram showing the zones into which the earth's surface is divided, the width in degrees and the name of each zone, and the names of the bounding lines.

8. Locate the following counties in South Dakota: Brown, Yankton, Brule, Beadle, Moody.

9. Name five rivers of the U. S. which flow into the Atlantic Ocean, and give the location of the mouth of each.

10. Where are bananas produced extensively? Raisins? Peaches? Figs? Spices?

ANSWERS.

1. Brazil, coffee; Paraguay, mate (yerba-mate); Argentine Republic, cattle; Chili, copper; Peru, quinine.

2. Not readily answered here.

3. Latitude is the distance east or west from an established meridian. Longitude is distance north or south from the Equator. The latitude of the Arctic circle is $66\frac{1}{2}$ degrees N. longitude; of the tropic of Cancer, $23\frac{1}{2}$ degrees N.; of the North Pole, 90 degrees N.

4. Venice is a city built on islands in the Adriatic sea. St. Elias is a high mountain in Alaska. Java is a large island of the East Indies. Iceland is a large island east of Greenland. Calcutta is a large city on the delta of the Ganges.

5. 11 a. m. at Chicago and 9 a. m. at San Francisco.

6. Liverpool, London, Southampton, Eng., and Hamburg and Bremen, Ger.

7. Beginning at the north pole, the zones are as follows:

The North Frigid, $23\frac{1}{2}$ degrees wide from the pole to Arctic Circle.

The North Temperate, 43 degrees wide, from arctic circle to the Tropic of Cancer.

The Torrid, 47 degrees wide, between the tropics.

The South Temperate, 43 degrees wide, from Tropic of Capricorn to Antarctic Circle.

The South Frigid, $23\frac{1}{2}$ degrees wide, from Antarctic circle to the south pole.

8. Brown county occupies the James river valley on the north side of the State; Yankton, the same on the south side; Brule lies east of the Missouri river, between the Bijou Hills and Crow Creek; Beadle county in the James river valley half-way between the north and south boundaries of the State; and Moody in the Big Sioux

valley north of Minnehaha and east of Lake counties.

9. Hudson river empties into New York harbor; Delaware, into Delaware bay; Cape Fear river, at Wilmington, N. C.; Savannah, at Savannah, Ga.; St. Johns, at Jacksonville, Fla.

10. Bananas are raised extensively in Florida and the West Indies; raisins in Spain and California; peaches in Maryland, Missouri and California; and spices in the East Indies.

PHYSICAL GEOGRAPHY.

1. What is the solar system?
2. How many times heavier is the earth than an equally large globe of water?
3. Enumerate the causes which produce the change of seasons.
4. By what forces are volcanic eruptions produced?
5. In what part of the earth are earthquake shocks most frequent?
6. What is Metaphoric rock?
7. Define: Mountain System.
8. How do large bodies of water moderate the extremes of heat and cold?
9. How does the destruction of the forest increase the severity of inundations?
10. What distant shores are warmed by the waters of the Gulf stream?

ANSWERS.

1. The solar system comprises the sun and all the bodies revolving around it as a center.
 2. $5\frac{1}{2}$.
 3. Inclination of the earth's axis and its fixed direction, with the revolution of the earth around the sun.
 4. Heat and the expansive force of steam and other gases.
 5. The younger mountain systems, where also volcanos are more common.
 6. One that has been changed from a fragmental rock to a crystalline.
 7. A mountain system is a cluster of mountain ranges, usually with their axes approximately parallel to one another.
 8. Because water takes much more heat than most substances to heat it 1 degree, and gives out correspondingly in cooling, water acts as an equalizer of temperature, and the more of it, the greater the effect.
 9. The water unimpeded by vegetation rushes to the stream at once, when it rains.
 10. The shores of Ireland, Norway, Nove Zembla.
- T. E. TODD, State Geologist,
State University, Vermillion, S. D.

LESSONS FROM GRAY—NOT INCLUDED IN HIS TEXT-BOOK.

BY BESSIE L. PUTNAM.

By the student of plant life the name of Asa Gray will ever be revered as one of the greatest scientists of the nineteenth century. A careful perusal of his *Letters* (2 vols. Houghton, Mifflin & Co.), is convincing evidence that he was more than this; that in the qualities which mark the true teacher in the highest, noblest sense, are concentrated the elements of his greatness.

Enthusiasm, patience, perseverance, thoroughness were ever prominent in his work, and were happily soon apparent among his pupils—disseminated by contagion rather than compulsion. A member of one of the first classes before whom he lectured at Harvard recalls those early efforts as "so full of knowledge, and of enthusiasm and so calculated to impress the young mind." His patience and thoroughness are illustrated by an incident related by Dr. Rothrock of his own experience as a pupil; and not until he had rewritten his thesis for the sixth time, would Dr. Gray permit him to rest satisfied with his production. "That is neatly stated," is a comment well remembered by his pupils when perfection had been to a reasonable degree approximated. Still more are the elements of the teacher shown in Dr. Farlow's memorial tribute touching upon "the tender personal interest which he showed in their (the pupils') hopes and half-formed plans for the future; an interest which, on his part, only strengthened as years passed on, and makes them now mourn, not so much the death of a great botanist as the loss of a sympathizing friend."

Untiring in his efforts to assist pupils in every legitimate way, none more fully realized than Dr. Gray the necessity of persistent individual labor on the part of the pupil. The principle of pedagogy was in fact daily applied in his personal investigations; for his student days only ended with his life; his text-books were largely the result of his own observations. Bearing these facts in mind, it is little wonder that when in 1858 D. C. Eaton applied for admission to his classes in preparation for his own class-room work during the following year as professor of botany at Yale, the first lines of the re-

ply were these: "I dare say you may learn something here as to teaching, etc., if you can pick it up yourself, which, after all, is the only way anything worth knowing is obtained." He further stated that, he could promise no special instruction; but was ever ready to advise, "drill a little at systematic work," and help as a friend and fellow-worker; this, together with what could be picked up about class illustration and manipulation, supplemented by the hospitality of his own home and accompanied by the specification that all instruction should be gratuitous, was certainly no mean offer, and characterized his devotion to the promulgation of his loved science.

The diffidence with which Dr. Gray entered upon the initial attempt of his first course of lectures is scarcely less amusing than surprising, and may serve as an encouragement to other teachers lacking self-confidence. It was evidently with a not inconsiderable degree of relief that he received notice from the president, who found that the class were not fully prepared for this stage of the work, requesting the postponement of the first lecture until the next week. "This I was most ready to do," he writes to a friend, "as it gave me the opportunity of entering by degrees upon my task, feeling my way instead of making a plunge in regular desperation. The great thing is self-possession. The moment I get that I shall feel tolerably safe."

His correspondence during this period indicates a constant striving after the best for his hearers, a conscientious effort to make the most of his opportunity, and a determination, even though the first efforts were disappointing to himself or to others, to never give up until the goal of his aspirations had been reached. "I am determined to succeed in the long run. Nil desperandum," was his declaration.

It is needless to say that he did succeed. Yet this did not prevent a partial return of the old trepidation when he entered upon a course of lectures at Lowell Institute the year following. In the second of these, which was fully illustrated, he decided to launch out boldly with only meagre notes on which to rely. His own account of the result runs in this manner: "I felt like a person who can hardly swim, thrown into the river, fairly in for it, and had to kick and strike to keep my head above

water. The results are these. I was by no means satisfied, and thought I had made almost a failure. I left out many important points, I repeated myself a little now and then, and—the usual result of extemporizing—I did not get through, but was obliged to break off in the midst of the best of it. But in spite of some difficulties of expression, and bad sentences, the whole was probably more spirited in appearance than if I had followed my notes. And the audience generally seemed more moved by it than by the first.

"I consider it thus far successful; that under unfavorable circumstances, for I had no time to look over my notes beforehand, I made a desperate lunge, and yet avoided a real failure. It will place me so much at ease that I can hereafter, with or without notes, look fairly at my audience without wincing."

Thus was the problem of self-possession, grappled a year before in the Harvard lectures, fully mastered at a single bold stroke. Verily, to none more powerfully than the teacher do Longfellow's words appeal:

"Be bold! be bold!" and everywhere—Be bold.

Restrained as we have seen by bonds of modesty, Dr. Gray's acceptance of the invitation to lecture before Lowell Institute seems to have been largely due to the financial inducements, and the advancement in his own prospects which even moderate success promised. Mercenary motives, did I say? No! With him personally, such inducements were futile. There was one of unremitting toil and pecuniary sacrifice in devotion to his loved study; and it was invariably with a view to its furtherance that offers of increased salary were hailed with delight.

His herbarium, a most valuable educational factor, seemed to him unwisely risked in the small house in his garden; accordingly he offered to donate it together with his library to Harvard University, providing a suitable building should be erected for their reception. And no one rejoiced more heartily than Dr. Gray, when in 1864, his herbarium of at least two hundred thousand specimens, and library of between two and three thousand works, the accumulation of his "small spare means for the last thirty years," were safely housed in a fire-proof building costing \$12,000. The expenses of car-

ing for this were maintained by a permanent fund donated for the purpose, aided by gifts from friends, etc. A bequest in his will attempts to replace, so far as was in his power, the sums he annually obtained from various sources during life, by leaving to the herbarium the proceeds of all his copyrights.

Significant of his desire for accuracy is his last letter, penned to correct a radical error in a subject which has of late almost caused a rupture among botanists, that of nomenclature. His opinions were clearly and fully stated; and when remonstrated with for overtaxing his strength, he replied that "it was important and must be written."

Patriotic, generous, noble, patient, faithful, conscientious and true, aside from its purely scientific value, the life of Asa Gray presents many valuable lessons.

FROM MY SCRAP-BOOK.

BY MARIE L. TURNER.

In looking over my scrap-book I turn first to the question of supplying supplementary reading to first and second grades.

It is a well known fact that the average first and second reader adopted for use in the public school is singularly deficient in information lessons.

In many districts it is not possible to buy the supplementary reading matter, of which we now have such an excellent variety, and at such very reasonable rates.

One progressive, earnest teacher has solved the problem for her grades, the result commending the method to grade and rural district teachers alike.

MATERIALS NEEDED.

1. An energetic and earnest teacher.
2. A rubber marking-pen, 10 cents. (Mr. Bell, 814 Olive street, St. Louis, Mo.)
3. Ordinary black ink.
4. Manilla paper—good quality of wrapping paper, cut in sheets, 2x3 feet.
5. A section of a broom-handle $2\frac{1}{4}$ feet long on which to mount the charts.
6. A hammer and small tacks.
7. A strip of drilling to tack charts securely.

RESULT.

In one instance, a set of seven charts on which were written in large and well-written characters, stories of "Hiawatha."

Phonetic charts, a number chart, language charts have been added to the reading charts, and in this way many excellent lessons have been preserved for future use instead of being erased from the black board.

The rubber-pen, ink, paper and a little time, will render the work of the teacher more efficient along certain lines, and easier. Try them.

CHART I.

Little Hiawatha lived with his grand-mother, Nokomis.

They lived in a wigwam on the shore of Gitchee Gumees.

In front of their wigwam was "the shining big Sea Water." Behind the wigwam was a black forest. In the forest were pine and fir trees.

Hiawatha had a little linden cradle. The bed was made of moss and rushes.

Old Nokomis sang little Hiawatha to sleep. She sang about the violet.

CHART II.

In summer Hiawatha sat at the door of his wigwam. He saw many things. He listened to the water and the pine trees. He loved to watch the fire-fly.

Nokomis taught him this song about it:

"Wah-wah-taysee little fire-fly,
Little, flitting, white-fire insect,
Little, dancing, white fire creature,
Light me with your little candle,
Ere upon my bed I lay me,
Ere in sleep I close my eye-lids!" &c., &c.

Clayton, Mo., October.



MOTHER'S DAY CELEBRATION.

BY MARY T. SASSEEN.

The ties of home should be, and, in adults, are the most sacred on earth, but a teacher of one year's experience knows the youth of today are irreverent in manner and lacking in that beautiful courtesy and love toward parents, that marked the old regime.

That some effort is needed to awaken children to a realization of their debt of love, is proven by the fact that in the two years since I first presented the idea of A Mother's Day (a day on which parents shall be invited to schools and a program presented entirely in their honor), to the public, twenty-six States have adopted and annually celebrate the day. The three educational aims reached are:

First—Teaching love of mother.

Second—Teaching love of home—patriotism.

Third—But not least—drawing teacher and parent into sympathy. You have the idea, but not upon me, or the superintendent, or the principal does the success of the day depend, but upon the earnest enthusiasm of the individual teacher.

In the program given below, the address of the teacher should be of welcome, touching lightly and kindly upon the duties of parent and teacher toward their common interest, "the child." Tardiness, attendance, home lessons, obedience, etc., as the parent often needs as much instruction as the child.

PROGRAM.

- 1 ADDRESS—by the Teacher.
- 2 ROLL CALL—answered by quotations on Mother.
- 3 SONG—"Stick to your Mother, Tom."
- 4 CLASS RECITATION—"Rock me to Sleep."

5 COMPOSITION—"How a boy should treat his mother."

6. RECITATION—"A fellow's mother."

7 What Washington, Lee, Garfield, Gladstone, Randolph, Luther, Reichter and David Swing thought of their mothers, told by eight pupils of the class.

8 SONG—"My Mother's Hands;" No. 135 Triumphant Songs No. 3. E. O. Excell, Pub., Chicago.

9 RECITATION—"The loveliest face in the world."

10 READING—"Mother."

11 SONG—"Home, Sweet Home."

12 COMPOSITION—"My home."

13 SONG—"Mother's Counsel;" No. 27 in Best Hymns, published by Evangelical Pub. Co., Chicago.

14 Incidents of mother's devotion or influence told by pupils.

15 CLASS RECITATION—"With Promise."

16 SONG—"Mother's Prayer;" No. 14 Triumphant Songs No. 3.

17 RECITATION—"My Native Land."

18 MY MOTHER—an acrostic by eight pupils.

19 SONG—"Remember Thy Mother."

20 CLASS RECITATION—"A Mother's Love."

21 SONG—"Do they miss me at home?"

Some pupils will select their own quotations, others the teacher will provide, having the entire class learn them. In giving quotations require the author, if possible.

QUOTATIONS.

"The future of society is in the hands of the mothers.—De Beaufort.

"God pardons like a mother, who kisses the offense into everlasting forgetfulness."—Beecher.

"One lamp, thy mother's love amid the stars, shall lift its pure flame changeless."—N. P. Willis.

"A mother is a mother still, the holiest thing alive."—Coleridge.

"Oh the little acts, the little things, The purest love disclose And make your mother's heart rejoice By the love for her it shows."

—M. Sasssen.

"He is happiest, be he king or peasant, who finds peace in his home."—Goethe.

"All that I am, my mother made me."—John Q. Adams.

"Who is Queen of baby Land? Mother, kind and sweet,

And her love born above Guides the little feet."

—Anonymus.

The compositions should not be written until the teacher has, by song and story, created a considerable sentiment, by thoughts of how a child should not treat a parent, etc.; then have the class prepare a composition, selecting the best to be read when the mothers are present. This will get the greatest thought on the subject, and that is what we wish especially in this celebration.

A FELLOW'S MOTHER.

"A fellow's mother," said Harry the wise,

With his rosy cheeks and merry eyes, "Knows what to do if a fellow gets hurt

By a thump or a bruise or a fall in the dirt.

"A fellow's mother has bags and strings,

Rags and boxes and lots of things: No matter how busy she is, she'll stop To see how well you can spin your top.

"She doesn't care, not much I mean, If a fellow's face is not always clean, And if your trousers are torn at the knee,

She can put on a patch that you'd never see.

"A fellow's mother is never mad.

But only sorry if you are bad; And I tell you this, if you're only true, She'll always forgive you, whatever you do."

THE LOVINGEST FACE IN THE WORLD.

"I love you, mamma," my little one said,

As close to my heart crept her golden head;

"I love you lots," with a clasp and a kiss,

"The best of all mammas, my mamma is."

"And I think," said she, looking up in my eyes,

With a glance that was tender and grave and wise,

"That you've got the loveliest face, Oh, Oh!

I'm glad you're my mamma, I love
you so!"

What was the praise of the world to
me,
To the love of the little one, throned
on my knee,
And this was my prayer, as I kissed
the eyes
That were smiling up at me, pansy-
wise:
"May the face of thy mother forever
be
The loveliest face in the world to
thee."

MOTHER—A READING.

When skies are dull, when winds blow
cold
Across the frosted fields and ways;
By ruddy fires old tales new told
Bring back the warmth of balmy
Mays;
What priestess claims the brightest
place
Preferred she is, above all other—
Whose smile is sought as favors grace
Whose name—ah, tender name—is
mother!

When children, grown up, rest from
toil,
Who lightens then each heavy deed?
Who sees the gold beneath the soil,
And gives each care its loving need?
Dear, patient fingers worn and old,
What deftness thine, more than all
other,
What pity thy pale face can hold,
Oh, thou, whose sacred name is
mother.

When Time turns children's heads
frost-gray,
We keep the thought of a kind face.
We falter on our darkening way,
We miss the faith and helpful grace,
The loving words, the slow, sad tear,
That tried our willful deeds to
smother
How cold our lives! But sweet and
near,
The image of a dear, dead mother.
—Sallie M. O'Malley.

When John Eliot, the Apostle to the
Indians, lay, in his eightieth year, up-
on a sick-bed, he was found, upon
what proved to be the day of his
death, busily employed in teaching a
little Indian child the alphabet. Urged
to rest, he replied, "I can no longer
preach, it is true, but I can do this
and I must be at work."

CLASS RECITATION, WITH PROMISE.

Yes, great commandment coming first
With promise—"Honor thou
Thy father and thy mother." Durst
Esteem it lightly, now?

Go, see thyself a babe again,
And one with watchful care
Close bending o'er you helpless, when
None other dared be there—

When fever burned your tender veins,
And swift contagion marred—
Her's were the agonies, the fears,
And dearer far than ward.

Her tears fell on your face at night
When health, returning drew
You life-ward, and you wakened,
bright
With merry laugh and coo.

And you—can ever you repay
This debt of mother-love?
This love that shapes us, that doth
sway
Our wills to that above?

That taught us first the nobleness,
The majesty of Truth
And sought so tireless to impress
The right upon our youth?

Yes, great commandment coming first
With promise—"Honor thou
Thy father and thy mother." Durst
Esteem it lightly now?

—Ingram Crockett.

MY MOTHER—AN ACROSTIC.

M.

I'm first of a band of brothers,
I suppose you all have seen them.
Our names are in flowery letters,
And mine is the letter M.

Y

I'm next in this band of brothers,
And to do my best I'll try
To make happy each day our mothers,
And behold my letter, Y.

M

Cowards are mean and cruel,
But, we, brave knights shall condemn
Those failing to help and protect her
Whose name begins with M.

O

The fourth in this grand procession
My name you soon will know.
Round and shining, a flowered ring,
I'm called the letter O.

T

Faithful, friendly and fearless
I will always try to be,
Striving my mother to comfort,
Now the letter T you see.

H

We are like a company of soldiers,
Trying to march with care.
Dare to be honest and faithful,
And H is the name I bear.

E

Kind and tender, and loving,
I will always strive to be—
To mother when weak and feeble,
And I'm the letter E.

R

Never a braver regiment
Marched to the sound of arms.
We are our mothers' comforts,
And R is the next that comes.

ALL.

And now if you'll read our motto
"My Mother" you will find,
Which means to all the mothers,
We've agreed to be good and kind.

We'll protect them from cruel usage;
Their rights we'll try to defend
And where e'er you chance to see us
You will find the mother's friend.

The letters may be covered with
flowers, gilt or silver paper, or corn—
and should be held behind the child
until the name of the letter is pro-
nounced. As all are held in a line at
the last, and the closing verse recited
in concert, the effect is pretty.

MY NATIVE LAND.

Breathes there a man with soul so
dead

Who never to himself hath said,
"This is my own my native land?"
Whose heart has ne'er within him
burned

As home his footsteps he hath turned
From wandering on a foreign strand?
If such there be, go mark him well,
For him no minstrel raptures swell,
High tho' his titles, proud his name,
Boundless his wealth as wish can
claim,

Despite those titles, power and pelf,
The wretch concentrer'd all in self,
Living shall forfeit fair renown,
And doubly dying shall go down
To the vile dust from which he sprung
Unwept, unhonored, and unsung.

—Sir Walter Scott.

Teachers, your credit is good at
Famous, corner Broadway and Mor-
gan.

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Remember thy Mother.

S. W. STRAUB.

Slowly, tenderly.

1. Lead thy moth - er ten - der - ly Down life's steep de - cline; Once her arm was
 2. Ne'er for - get her tire - less watch Kept by day and night, Tak - ing from her
 3. Thank God for thy moth - er's love, Guard the price - less boon; For the bit - ter

thy sup - port, Now she leans on thine. See up - on her lov - ing face,
 step the grace, From her eye the light, Cher - ish well her faith - ful heart,
 part - ing hour, Com - eth all too soon, When thy grate - ful ten - der - ness,

Those deep lines of care: Think—it was her toil for thee, Left that rec - ord there.
 Which, through wea - ry years, Ech - oed with its sym - pa - thy All thy smiles and tears.
 Los - es pow'r to save, Earth will hold no dear - er spot, Than thy moth - er's grave!

From "Happy Moments" and "Woodland Echoes," combined. Published by S. W. Straub & Co., Auditorium, Chicago.

A MOTHER'S LOVE.

A mother's love! Oh, soft and low
 As the tremulous notes of the dove's
 low call,
 Or the murmur of waters that gently
 flow
 On the weary heart those accents fall!

A mother's love! The sacred thought
 Unseals the hidden fount of tears,
 As if the frozen waters caught
 The purple light of earlier years.

A mother's love! Oh, 'tis the dew
 Which nourisheth life's drooping
 flowers,
 And fitteth them to bloom anew
 'Mid fairer scenes—in brighter bowers,
 The songs, and other poems includ-
 ed, are so well known as to be found
 without any difficulty; the room could
 be decorated with appropriate draw-

ings, and by school work, but have no
 lessons that afternoon. Let it be a
 heart lesson.

I would urge the teachers to insist
 that the children wear their school
 dresses; to hurt a child's feelings is to
 me like shocking an angel, and as all
 of the public school patrons are not
 well-to-do, the majority being unable
 to dress their children in silks or fine
 muslin, see to it that a rivalry of
 clothes does not spoil the spirit of
 your day.

Hey for fun on Hallowe'en!
 Bring some apples, red and green,
 Set the pretty fruit a-swimming
 In a tub with water brimming;
 While they float from side to side
 And your mouth is open wide
 Duck your head, my little man,
 Catch an apple if you can,
 Once for red and twice for green,—
 This is fun on Hallowe'en.

—Youths' Companion.

THAT GEOGRAPHY.

Such a horrid jogafray lesson!
 Cities and mountains and lakes,
 And the longest, crookedest rivers,
 Just wriggling about like snakes.
 I tell you I wish Columbus
 Hadn't heard the earth was a ball,
 And started to find new countries
 That folks didn't need at all.

Now, wouldn't it be too lovely
 If all that you had to find out
 Was just about Spain and England,
 And a few other lands thereabout,
 And the rest of the maps were printed
 With pink and yellow to say,
 "All this is an unknown region
 Where bogies and fairies stay!"

But what is the use of wishing
 Since Columbus sailed over here,
 And men keep hunting and 'sploring
 And finding more things every year.
 Now show me the Yampah River,
 And tell me where does it flow?
 And how do you bound Montana?
 And Utah and Mexico?

—EMILY H. MILLER.



KINDERGARTEN PROGRAM.

SADIE P. BARNARD.

Our aim in the morning talks and conversations is to bring familiar things into right relations with the children, leading them from the known to the unknown; to see the connection of all things and the unity of life.

"What we need is more a sense of the whole, not things so much by piece-meal."

DETAILED POINTS FOR STUDY.

First—Family Life.

What is the mother doing at home?

Where is father, what is he doing?

For whom are they working?

Who can help them?

Think of many things the children can do.

In this connection, study family life among the birds and animals, making free use of pictures.

THE SEASON—FALL.

Second—Harvest time.

Fruits, their form and color.

What do we find inside?

Why so carefully hidden away?

The work of the sun and rain in ripening the fruits just at the right time, before the cold weather.

Study the trees—the work they do—the good gifts they furnish us.

Different parts of the tree—each part has its own work to perform—unity of the tree.

Trees furnish homes for the birds.

Falling of the leaves, they are ripening, too.

Gathering of nuts—who gathers many nuts to store away for winter?

Saving of seeds that are ripe, for next year's planting.

Bringing in of vegetables—who raise them?

Why do the farmers raise so many?

Who has seen a farmer selling vegetables?

What did he have in his wagon?

Who helps him bring his produce to the city?

Could we live without the farmers to work for us?

Study other busy workers preparing for winter. Migration of birds—work of the squirrels.

Encourage the children to bring fruits, nuts, seeds, leaves, anything they can find bearing on the subjects talked about. Help them to observe study and enjoy everything in nature.

NOVEMBER.

CENTRAL THOUGHTS.

Unified Connection—Interdependence.

THANKFULNESS.

We have seen in the previous months what the trees furnish; homes for birds and squirrels; fruits and nuts for us all; still from them we receive another good gift.

What can it be? Wood. Let the children name articles made from wood.

Our houses built of wood protecting us from cold and storm, barns, shelters for animals and store-houses for grains and vegetables.

Wood used for fuel, furnishing us warmth and cheer.

BUSY WORKERS WHO HELP US ALL.

The cooper—making barrels for the farmer and miller. What will they use them for?

The miller—changing the little hard grains into flour and meal, soft and fine. How does he do it?

The baker—using the flour in making our bread, crackers, cakes and other good things.

The carpenter—building our houses and barns.

Count all these workers. Name the tools each one must use. Let all the children personate them. Thus bringing them into touch with the work of the world.

Emphasize the inter-dependence of these workers and our dependence on them all.

Cultivate a true appreciation of the work of others.

Respect all workers, and love work for its own sake. Each one has a part to perform, each one may be a helper.

THANKFULNESS.

Thankfulness for blessings received; who can count them. Each child may tell of some things they have to be thankful for.

We may show our thankfulness by doing some one a kindness.

Each child can think of something they can do for some one, that will help them.

Speak of the Pilgrims—their voyage, what they brought with them, their courage, willingness to do all kinds of work, even the little children helping, thoughtfulness for each other, thankfulness for blessings—The First Thanksgiving—Our Thanksgiving.

THE BIRD'S THANKSGIVING DINNER.

SADIE P. BARNARD.

Oh, Meg! said Bess,
I'm sure you know
Thanksgiving day is coming;
I've such a plan
Just do please guess,
My brain is fairly humming.

Let's fix a dinner for the birds,
Of everything that's nice;
Some crumbs of cake and bread
And little plates of rice.
We'll set it on the door-step
Then keep as still as mice.

Some water, too, they'll want a drink,
Now hush, I hear them chattering;
They're flying down, so many, too;
See how the crumbs are scattering.
We cannot understand their talk—but
think
They're thanking Bess, don't you?

THANKSGIVING DAY.

SADIE P. BARNARD.

The happy day has come at last,
And we will thankful be;
For blessings present, blessings past,
For fruits and flowers, from bush and tree.

COMING HOME.

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AGNES KINCLAD.

(A Thanksgiving Song. May be used as a Solo.)

S. C. HANSON.

1. Home from hamlet and cit - y, Home o'er riv-er and sea, The boys and girls are
 2. Laura, my pride, my dar - ling, And my lit - tle Ro - sa - lie; And the chil-dren are all
 3. So o - pen the doors and win - dows, And let in the gold - en air, Sweep out the dust and

com - ing, To keep Thanks-giv-ing with me. Hugh is a judge they tell me, And
 com - ing, To keep Thanks-giv-ing with me. The great world's din is soft - ened Ere it
 cob - webs, And make the old home fair. For swift from hamlet and cit - y, Swift

John's a "learned di - vine," They were always more than common, Those stur - dy lads of mine.
 reach - es this a - bode, This mountain farm that li - eth Under the smile of God.
 o - ver riv-er and sea. My boys and girls are hast-ing To keep Thanksgiving with me.

From Golden Glees," price, 35 cents. Used by permission of the publisher, A. Flanagan, Chicago. Copyright, 1895.

The bright sunshine and pattering
rain

Have helped us all, you know.
The busy bees, and singing birds,
All things that live and grow.

The farmer, now has gathered in
His corn and pumpkins yellow;
And in the cellar, in each bin,
Are apples, ripe and mellow.

And now the wind is blowing cold;
But we are snug and cosy;
For grandpa's house no more will
hold,
Of children, bright and rosy.

With thankful hearts we've gathered
here.

Outside it's cold and dreary,
This gladdest day of all the year,
Around the fire, it's cheery.

IN THE BARN.

SADIE P. BARNARD.

In the barn 'tis snug and warm,
And if you listen closely
You'll hear some talk of raging storm,
That's rattling boards, on loosely.

I'm glad we've such a nice good home,
Said Mrs. Mooly Cow;
And not outside obliged to roam;
Just hear that wind blow, now.
I hear a step, 'tis Farmer Brown,
He's bringing us our feed;
And if he wants to go to town
I'll trot my best, he gives us all we
need.

Thus spoke the horse, so sleek and
black,
That lived in his new-made stall;

We like the farmer, cluck, cluck,
Comes from fowls, both great and
small.

From calves and sheep,
We heard kind words, and little
chickens, too,
Were glad and thankful; peep, peep,
peep,
They've gone to sleep, and pleasant
dreams to you.

HOW'S THIS?

We offer One Hundred Dollars Reward
for any case of Catarrh that cannot be
cured by Hall's Catarrh Cure.
F. J. CHENEY & CO., Props., Toledo, O.
We, the undersigned, have known F. J.
Cheney for the last 15 years, and believe
him perfectly honorable in all business
transactions and financially able to carry
out any obligations made by their firm.

WEST & TRUAX,
Wholesale Druggists, Toledo, O.
WALDING, KINNAN & MARVIN,
Wholesale Druggists, Toledo, O.
Hall's Catarrh Cure is taken internally,
acting directly upon the blood and mu-
cous surfaces of the system. Price, 75c
per bottle. Sold by all druggists. Testi-
monials free.

PRACTICAL DRAWING.

BY W. T. PARKS, DENVER, COL.

CONE AND APPLICATIONS.

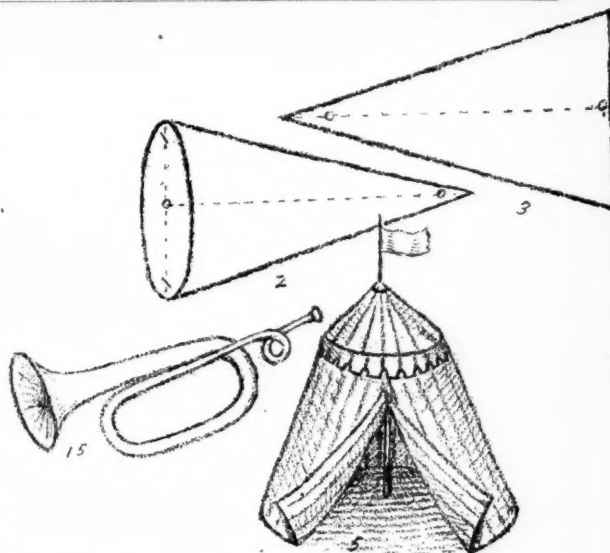
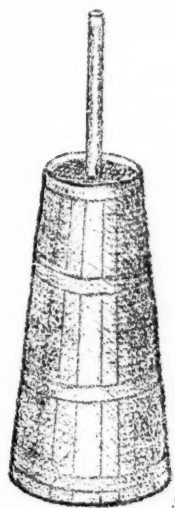
Lessons on the cone may very appropriately follow that of the cylinder; as, the outline of the base of the former is exactly like one end of the latter; in fact, I think such proper, when lessons are given in the order of their similarity; and I believe that to be much the best plan generally.

The outline of the side of the cone is an isosceles triangle, of the end of a circle. Drawing No. 3 shows the appearance of a horizontal cone when looking directly at the side; No. 2 the same, when the base is partly turned towards the observer.

The churn represents a frustrum of a cone, and the two parts of the dasher, cylinders.

The tent represents a small cone upon the top of the frustrum of a larger one—both are hollow.

In drawing conical objects in the position shown by No. 2, draw the end first. Notice that the end of the cone when turned only partly towards the observer, as in this instance it appears about twice as tall as broad. Draw the top of the churn first, the sides next, then the bottom and lastly the hoops, etc. Notice that the nearer bottom line curves downward more than the top one. The pupil should place a cone in each of the positions here represented also others, and study and draw.



The beginner nearly always overdoes his work. It is well to know where and how to begin but is just as necessary to know when to quit.

There are many common objects similar to the cone; as, vegetables, tumblers, trees, towers, cooking utensils, toys, etc.



Not only make and have the pupils make objects based upon the cone but ask them to bring beets, turnips, carrots, parsnips, radishes, etc., etc., to school for models. Collect as many models as possible, and use them as much as possible. Remember that success in drawing depends entirely upon the teacher; if it is a failure, it is because the teacher does not try to teach it—there can be no other reason for failure.

QUEER QUERIES FOR FRIDAY AFTERNOONS.

What in life is more beautiful than happy human faces?

Write upon the blackboard, or read the following Queer Queries to your pupils while they copy them into their note books. Ask each one to find the answer to each if possible, and to keep this answer a secret until Friday afternoon. In a general exercise on Friday evening just before dismissal,

have pupils volunteer to answer each question; give the weak ones a chance to answer the simpler questions.

FIRST WEEK.

1. What is meant by downward? By upward.
2. Which of the United States borders upon eight States?
3. Who was "Poor Richard?"
4. How many electoral votes this year?
5. What Presidents have been elected from Illinois?
6. Is a letter addressed or directed?
7. Can you move your upper jaw independently of the rest of your body?
8. What was the time of day in China when you came to school this morning?
9. How does a bat catch a fly?
10. If the earth turned in an opposite direction where would the sun rise?

SECOND WEEK.

11. What tea party is celebrated in our history?
 12. How many electors has Illinois?
 13. Is a bottle empty when filled with air?
 14. What King ordered the Sea to be whipped with switches?
- Two magnificent bridges of boats built across the Hellespont, having been damaged by a storm, the story is that Xerxes ordered the sea to be beaten with whips, and fetters to be thrown into it to show that he was its master. His army was so vast that it



One who copies drawings all the time will never learn to draw well. In drawing a group, as, the pitcher and tumblers, the nearer objects should always be represented first. Use as few lines as possible and see that every line means something. Unnecessary lines are positively harmful. The more skillful the artist, the fewer lines he uses.

was seven days in crossing.

15. What is your "Crazy Bone?" The "Crazy Bone" is the ulnar nerve and not a bone.

16. What is a "Poor Farm?" Its use?

17. Who is the Governor of your State? His salary? Term of office?

18. What President was the son of a President? The grand-son?

19. What is the capital of your county? The capital of your township? (The place where the electors vote is termed the capital of the township.)

20. How many seeds in an apple? They point which way?

THIRD WEEK.

21. Which way do the seeds in the melon point?

22. What is monometallism? Bimetallism? A gold standard?

23. What State consists of two peninsulas?

24. What is the only city on the Equator?

25. Why do we wink?

26. Who first signed the Declaration of Independence?

27. Who is the County Superintendent of Schools in this county? Who is the State Superintendent of Schools?

28. When is the Presidential election held? How many electors will be a majority?

29. How are the number of electors determined?

30. Is the water pushed up or pulled up in the lifting (common) pump?

FOURTH WEEK.

31. If 300 cats catch 300 rats in 300 minutes, how many cats will catch 100 rats in 100 minutes?

32. What is a wooden wedding? A tin wedding?

33. If a snail gets into a beehive what will the bees do with it? (Seal it up with beeswax.)

34. What is the "Hub of the Universe?"

35. J. E. Proctor purchased a horse of W. B. Davis for \$90 and sold him to Jno. O. Kennedy for \$100. He then purchased another of James McClure for \$95 and sold him to W. M. Evans for \$100. How much did he make?

36. Why can a fat man swim better than a lean one? (Fat is lighter than muscle.)

37. When do the electors of the several States meet to cast their ballots for President of the United States?

38. Who is the oldest man in this school district? The oldest woman?

39. Which of the following statements is correct? Ten times 1 is 10, or 10 times 1 are 10, and why?

(The latter because we mean "ten ones are ten." Ten taken one time is ten; one taken ten times are ten.)

40. Which President, his mother being too poor to have a cradle, was rocked in a trough which had been used for the purpose of catching sugar-water?

(Andrew Jackson's father died before he was born; his mother lived for a time with her sister, Mrs. McKinney and then with another sister, Mrs. Crawford; each of these families were quite poor and unable to furnish a cradle of the usual form, so the little fellow was rocked in a sugar-trough.) Continued next month.

Tell the children that we want all of the Queer Queries about common things that we can get, and that we will use all appropriate ones that they may send to us provided they have not yet been used.—Trainers' Lesson Leaf.

THE ALCOHOL APPETITE.

Seventh Year Work.

Suggestions to the Teacher.

It is to the public schools very largely that the nation is now looking for instruction along hygienic lines, which shall reach all classes. Laws are enacted, schools are organized, and teachers employed to supplement home training when this has been in the right direction; to supply the lack when it has been wholly absent, and to counteract wrong home teaching.

Increasing competition in every line of work calls as never before, for sound, healthy, physical manhood and womanhood. Boys and girls who grow up fettered from the start by bad habits cannot hope to succeed, while the law of the "survival of the fittest" holds good. It is our business, teachers, and our privilege as well, to give the pupils whom we can reach, a start upon the right road which they might otherwise miss, and which will place them hereafter on the gaining and not on the losing side.

PLACE IN THE COURSE.

If the class has studied "food" already, the transition to the subject

of "drink" will be easy and natural. As this includes many topics, and material enough for several lessons, the following order of study is suggested:

DRINKS.

1. Healthful—pure water, good milk, etc.

a. Uses of each.

b. Value as food.

c. Proper amount.

2. Unhealthful or poisonous—impure water or impure milk, all drinks containing alcohol.

a. Most common—cider, beer, wine.

b. Origin and nature of alcoholic drinks—fermentation.

c. The alcohol appetite a diseased appetite.

d. Effects of alcohol upon the system.

If the class is using the endorsed text-books the pupils will find ample material for full and careful study upon any and all of these topics.

Beginning with the upper grammar grades, at least, it is wise to support all important statements by quotations or reference to the opinion of scholars who are recognized everywhere as authorities. Such corroboration tends always to strengthen the confidence of the pupils in the teacher, to remove doubt as to the facts, and to equip pupils with authority with which to defend the truths they are learning.

The recitations upon this subject may be begun by the teacher calling for a short class discussion of the meaning of the words "alcohol" and "appetite." If the pupils have come prepared for this by previous consultation of dictionaries and such text-books of this and other grades as are within their reach, definitions equivalent to the following will be obtained with little difficulty:

"Alcohol is that part of all spirituous liquors which intoxicates or poisons people."

"A natural appetite is a demand or desire within us to satisfy some need or craving of our nature."

When these definitions have been copied by the class, and they have given sufficient illustrations to show that each is clearly understood, they may be encouraged to contrast the alcoholic appetite with the normal desire of the body for food, and to bring out the results of each upon the system.

1. "Natural appetite, or hunger, is the demand for material to supply the growth or waste of the body."

2. "Natural appetite is not exclusive; it is satisfied with any substance which can be assimilated."

3. "When natural appetite is satisfied there is no further demand nor relish for food for the time being."

4. "Natural appetite requires no abnormal increase from day to day in the amount of food taken."

1. "Alcoholic appetite is a diseased, unhealthy craving for alcohol in any of its forms." —From Medical Dictionary.

2. "Alcoholic appetite is exclusive; it is not satisfied with any substance which has not the properties of alcohol."

3. "The alcoholic appetite is never satisfied; hence its victims have a perpetual craving for alcohol in some form."

4. "Alcoholic appetite is cumulative, requiring an increase in the amount of alcohol taken."

When these or similar properties have been brought out and discussed by the class, they are ready for the effects of each upon not only the system, but upon the habits and morals of people. The teacher should question the pupils until they clearly understand and can state such well-known facts as these, that

1. "The natural appetite calls for proper food, in proper quantities," which tends to

- Build up the whole body.
- Lengthen life.
- Make people strong to work and acquire property.
- Lead people to become good and industrious citizens.
- Aid mental and moral growth and development.

2. "The alcoholic appetite calls for alcohol, which is not a food at all" but which

- Tears down and poisons the whole body.
- Shortens life.
- Diminishes strength and leads to poverty.
- Incites to crime and helps to fill the jails and prisons.
- Blunts the mental and moral powers, and leads often to idiocy and insanity.

The pupils will now be ready to discuss the causes which lead to the for-

mation of the alcoholic appetite and which render it so powerful and difficult to get rid of, when once formed.

THE MODERATE DRINKER'S DANGER.

Many people who condemn what they term "the excessive use of alcoholics" have erroneously supposed that there is no danger in what they call "a moderate use of alcoholic drinks."

There is no popular error which has led to drunkenness more than this. It may almost be said to have been the chief cause of that vice, and there is no fallacy which needs more to be corrected by wise and judicious teaching of facts.

This part of the lesson might be opened by the teacher's writing on the board the question:

"What amount of any alcoholic beverage is it safe to drink?"

Ask for verbal answers from selected pupils and call upon the class to criticise their replies.

If the question of the doctor's prescribing alcohol in any form as a medicine is brought forward, the teacher will do well to remind the class that it is alcohol as a drink or beverage, not as a medicine, to which the above question refers. In that connection the truth that alcohol should never be taken as a medicine on any but a physician's prescription, any more than any other poison, should be impressed. By questions bring out the fact that the doctors learn in medical colleges what to give sick people, but lessons in physiology and hygiene in the public schools are to teach us how to keep from being sick.

Write this answer on the board: "Alcohol like other substances of a narcotic nature, has the power when taken frequently even in small quantities, to create a diseased appetite for more which may become uncontrollable, and its gratification destructive."

Next call up a pupil to tell if this quotation answers the question, asking the class to watch carefully and note if the answer is accurate. Ask some pupil who thinks the quotation answers the question to tell why? Question to bring out what the class know about the nature and power of a narcotic when taken into the human system. Pupils of this grade who have used endorsed books ought to understand and to be able to describe the

subtle, seductive, and dangerous character of a narcotic.

The class should be led to think and reason on the topic before them until some member can write on the board that

"A beverage that has the power to create an appetite which may become uncontrollable and which if gratified will destroy its victim, is unsafe to drink at all."

The comprehension of the subject by the pupils might be further tested by the question put on the board by the teacher:

"Is moderate drinking safe? If not, why not?"

Next put on the board the question:

"Is the danger that the use of alcoholic drinks may lead to the formation of an uncontrollable and destructive appetite for more, sustained by good authority?"

After listening to what answers the class may offer, put upon the board the saying of John B. Gough's that

"There is a time in the drinker's experience when he could stop drinking if he would, but there comes the time when he would stop drinking if he could."

Ask some member of the class to explain that, and another to tell the meaning of the Japanese problem which says:

"A man took a drink, then the drink took a drink, and then the drink took the man."

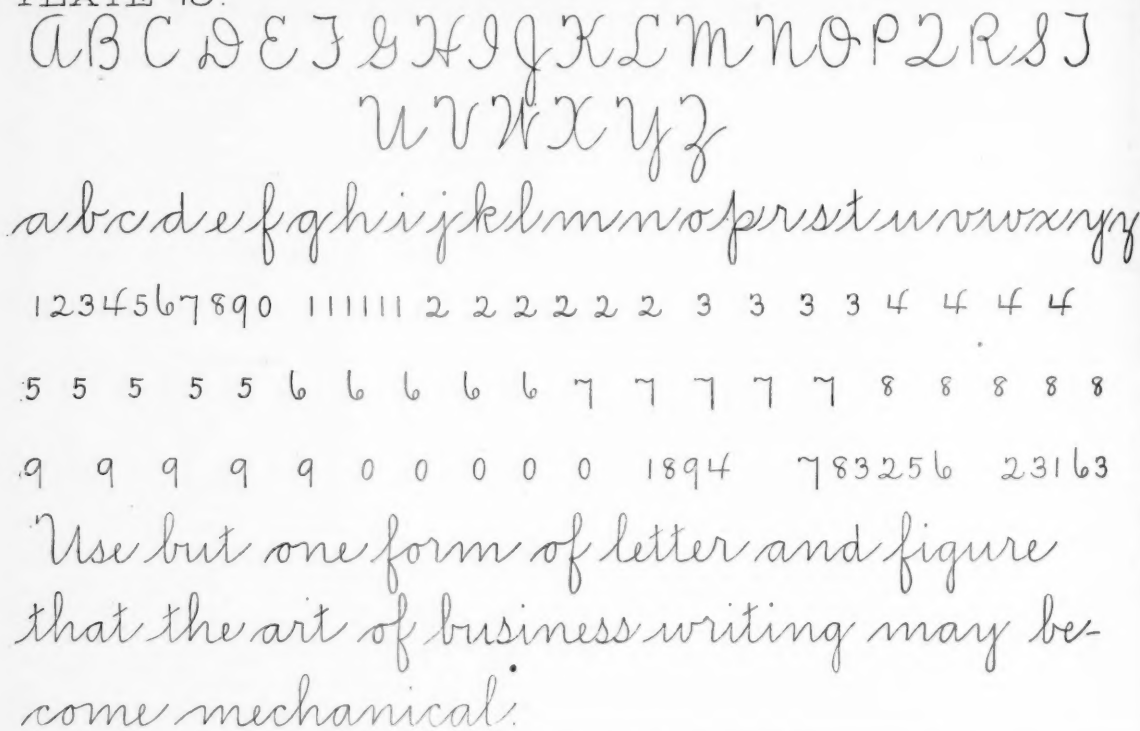
The amount of heart and skill which you put into this lesson, teacher, will go a long way toward deciding the future destiny of some of your pupils for sobriety and drunkenness.

First try to grasp this great natural law with all it means of unconscious peril to the vast army of so-called moderate drinkers, and then try to teach it with such force and impressiveness that each pupil will make for himself the personal application.

With skillful and sympathetic tact lead the thoughts of all away from any parent or other relative who may be an illustration of the alcoholic appetite.—Abridged from School Physiology Journal.

A traveler asked a man with a wooden leg, "Were you a member of the army?" "Yes, sir," was the reply. "I was membered by a recruiting officer, dismembered by an artillerist, and remembered by a wooden leg manufacturer."—Journal.

PLATE 10.



LESSONS IN VERTICAL WRITING

By E. C. Mills, Rochester, N. Y.

NO. 11.

SYSTEMATIC PRACTICE.

If there is one thing we wish to especially emphasize, it is the habit of systematic practice. By systematic practice we mean the use of one form of letter and figure for general business purposes. Of course, for fine ornamental penmanship a variety of forms is not only suitable, but desirable, but not many of our readers have the time to spend in acquiring an ornamental style of writing and must be contented with writing a plain hand, and to all such we would advise the use of but one form.

In a certain compendium of penmanship we have examined, it seems that the author put forth every exertion to make each capital in a different way, and consequently those who practiced from the copies acquired an unsystematic hand and when they endeavored to do practical writing were at a loss to know just what form to use. In practical writing the person is

not supposed to pay attention to the matter of penmanship, his mind is occupied with other things, and it should be the student's aim during the writing hour to practice on one form of letter until it becomes mechanical.

SUGGESTIONS.

In the alphabet of business capitals, it has been our aim to give the most appropriate design of letters for general business purposes. As was stated before, brevity is one of the important features, and you will notice that no useless strokes have been employed in the building of these letters. Study carefully the formation of each letter, then with an easy movement, practice until you can make all the alphabet without having to refer to copy; and by thus getting the form fixed in the mind, that is, know the shape of the letter without looking at the copy, you will only have to direct your attention to the movement required to produce the letter in the desired style. The trouble with the average student is too much practice and not enough study. It has been said by good authority that "study and practice go hand in hand." In studying a form, do not

merely glance at it and say, "That's capital O," but when you see what letter you are about to practice, study it with a view to know how the framework has been arranged to form such a structure; study the width, height and relation one element has to another, and after such study you can practice intelligently.

THE FIGURES.

Spend some time each day in practicing figures, as the ability to make good figures is a rare accomplishment, and one worth as much to a business man as most anything you could mention, because so much depends on figures.

HOW TO MAKE THE FIGURES.

The figure "1" is just a straight, short line. Start about one space above base line and bring the stroke down to the blue line, and be careful not to go below it. Use an easy movement and make each one carefully.

The "2" is made somewhat like the capital "Q," only on a smaller scale. Commence with a slight dot and also notice how the last part is finished. Use a little finger movement in making this figure.

The "3" is begun with the dot, and see that you have a small loop in center of figure.

The "4" is started with a short vertical line, then we have a horizontal line brought a trifle to the right of the last down line. Finish with the downward curve, which should be made a little higher than first part of figure.

The "5" is rather a difficult figure to make properly. Study it carefully. Be sure the last is connected with the first part of figure.

The "6" is made about a half space higher than the "1." Be sure to make the last short down line parallel to the long stroke.

The "7" is begun with the dot, then we have a short compound curve, and finish with a straight line about one-half space below base.

There are two ways of making the "8." Either one is good, as both are practical forms.

The "9" is formed by making a small oval and finished with a straight line, the same as the figure "7."

The "0" is made rather oblong and you will secure better results if you make it with mostly arm movement.

After writing several lines with each of the above, you may then review them all together.

I know a winsome little maid,
So fair to see—
Her face is like a dainty flower.
So lovingly
She looks upon this world of ours,
And all who pass,
That sweet content makes beautiful
My little lass.

I know another maiden well,
She might be fair—
Her cheek is like a rose-leaf soft,
Like gold her hair.
But ah! her face is marred by frowns,
Her eyes by tears,
For none can please. I dread to think
Of coming years.

Would you, dear, grow to beauty rare
In thought and deed?
Then learn the lesson these two teach
To those who heed,
And in your heart, as life begins,
Give this truth place;
'Tis only lovely thoughts can make
A lovely face.

—St. Nicholas.

THE WAIL OF AN INDIAN QUEEN.

BY FRANK C. RIEHL.

Yes, paleface, me will take the coin
you give,
Though nothing to my people ever
came
Of good through yours; but Helahdee
must live,
If only thus to show the Indian's
shame
Of shameless degradation and decay,
Through evil Mahho of the white
man's art;
That took my husband and brave
youths away,
With poison keener than the venom
dart.

How have we suffered, dare you ask
of me?
O that my lost Matotopa were here;
But yonder his Pokomokon, long free,
Hangs with Mahkee, dust covered.
Have no fear,
An Indian mother may not strike the
foe,
Not even to avenge her murdered
sons;
And even Helahdee would hide her
woe,
That from her heart, a bloodless
fountain, runs.

Long since Petemday and Maloheho
Have joined them on the Happy
Hunting Grounds,
And Ampah and Warrahpa soon must
go
With Shakoko and Koka to the
bounds
Of that high world, Kopeskoday that
sings;
Where grows Wukmiser from the
unturned sod,
And where Marahka's kindly favor
brings
More gen'rous favors than the white
man's God.

Here once was fair, when all the hills
were green
And prairies stretched beyond Mah-
sishe's flight,
And in the vales the grazing herds
were seen—

The Indian's meat and comfort, life
and light;

When uncorrupted here he ruled su-
preme

And knew no danger in his native
art;

His mind unclouded by the fatal dream
Of deadlier weapons than his honest
dart.

But came Okeechedee, the white man's
friend,
And brought the demon waters in his
hand,
To steal the warrior's reason, and pre-
tend
To trade; and robbed him of his na-
tive land.

The Father's simple child, he could not
tell
That he who spoke so fairly was a
thief;
And through his free-born charity, he
fell;
What's more to say? Spare now a
Meha's grief.

We weep alone, unpitied and unwept,
By them who laid our warriors in the
dust;
And widowed all the days since they
have slept,
We pray the Father's compensation
just,"

So sits Helahdee, prating in her age
To every comer to her lone tepee;
Read we the tale, and blushing, turn
the page,
For truths that burn are never soft
to see.

Alton, Ill., June 18, 1896.

Key to Indian words—"Me-I; "Hel-
ahdee,"—The Pure Fountain "Mahho,"
—Spirits; "Matotopa," The Four
Bears; "Pokomokon" War Club; "Mah-
kee," Shield; "Petemday," Buffalo; "Ma-
loheho," Bear; "Ampah," Elk; "War-
rahpa," Beaver; "Shakoko," Mink;
"Koka," Antelope; "Kopeskoday," the
Shell; "Wukmiser," Corn; "Marah-
ka," the Sun; "Mahsishe," the War
"Meha," a Woman.

Eagle; "Okeechedee," the Evil Spirit;

Mrs. Dearborn—"Is she unmarried?"
Mrs. Lakefront—"Decidedly so. She
has been unmarried three times."—
Truth.

CHILDREN'S CORNER.

My Dear Boys and Girls: I read, long ago, a true story which I have often thought since I would tell to you in one of our talks. It was about a young man who afterward became a distinguished and wealthy publisher of books. At the time I speak of, he had a little book store in a country village, and used often to buy books of a prominent merchant in New York. This merchant noticed that whenever the young man (Henry, we will call him) bought a package of books which was not very large, he always carried it away in his own hands instead of ordering it to be sent to his hotel. Now, you would hardly believe it, but this disposition to do his own work with his own hands, whenever his own hands were equal to it, so pleased the great book-seller that he began to think of the young man as a partner in his own business, and so, in due time, he became, and together they formed the firm which has grown into the famous publishing house of Ivison, Blakeman, Taylor & Co., whose imprint, I dare say, you have often seen upon books. The writer who tells this story adds to it such wise words that I think I must print them for my young people just as they stand. He says:

"If any boy should think, 'Now I will watch an opportunity, and buy a package at some store and carry it home myself, and so jump into a good position and become a great merchant,' he would make a foolish mistake. Henry Ivison did not carry his bundles for the purpose of attracting Mr. Newman's attention. To save expense or to avoid troubling another person, was the right thing to do in that case, and this young man had formed the habit of doing the

right thing—the right little thing as carefully and conscientiously as the right big thing. Boys, and girls, too, it is chiefly in doing little things rightly and carefully, or doing them carelessly and badly, or neglecting them, that your characters are to be formed. Nothing that you ought to do is too small to deserve careful and faithful doing. Nothing to which kindness or justice or prudence prompts is so trivial that you can afford to neglect it.

"There is a great deal in this matter of carrying your own packages or bearing your own burdens. They who are careful to do this whenever they can, never willing to trouble another unnecessarily, are the very ones who are most ready to help others whose burdens are too heavy for them, and whom others are most glad to help when they have burdens heavier than they can carry alone.

"I have known boys who would never let their mother carry a bucket of coal or of water when they were near, and who would make their own bed and tidy up their own chamber when sister was sick or the hired girl had left without warning, or when they had noticed that the faithful hired girl looked tired or ill. And I have known other boys who, with nothing whatever to do, would stand at the top of the stairs and call mother or sister to fill their pitcher or bring their clean clothes, and the patient, kind, but unwise mother would submit to the selfish tyranny. I did not know Henry Ivison when a boy, but believing that 'the boy is father of the man,' I am sure that his good Scotch mother was saved many a weary step by her thoughtful boy. I think that Henry learned the fifth commandment and kept it—learned and kept it 'by heart.' I guess, too, that Mr. Newman in his

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old age found his business attended to by his young partner in a way that gave his mind rest when it was needing it.

"Boys, girls, carry your own packages while they are not too heavy. This will strengthen your arms to help others who need help, and make them love to help you when your burdens are too heavy or your arms too weak."

Is not that good advice? I think so. I wish you especially to notice those words, "this young man had formed the habit of doing the right thing—the right little thing—as carefully and conscientiously as the right big thing." Why, there is the whole secret of living well packed in that one sentence!

COUSIN CARRIE.
In *The Observer*.

Pages' Theory and Practice of Teaching free. See page 31.



STORIES OF NEW JERSEY. By Frank R. Stockton. Cloth 12mo, 254 pages. Illustrated. Price, 80 cents. American Book Company, New York, Cincinnati and Chicago.

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A HANDBOOK OF VOCAL MUSIC. By John W. Tufts, 308 pp., bound in cloth, fully illustrated with musical selections, \$1.50. Silver, Burdett & Company, Publishers, 110-112 Boylston street, Boston.

This Handbook is intended to serve as a guide and standard for the teaching of music in public schools, and will be of great value to both special teachers of music and regular teachers who are giving instruction in music in connection with their grade work.

From a musical standpoint the book is a most remarkable one. The author analyzes exercise by exercise, song by song, the different books of the Normal Music Course and The Cecilian Series of Study and Song, pointing out the specific problems to be solved in each one and showing how each con-

tributes to the full solution of that fundamental principle which is being developed.

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THE GREENE MUSIC COURSE FOR PUBLIC AND PRIVATE SCHOOLS.—Book three, by Charles H. Greene, Sr. Werner School Book Co., Chicago and New York.

The late Prof. Greene was well known both in Illinois and Missouri, as one of the most successful musical instructors, both in the school room and in the institute.

This third book was completed and the last proofs read by the author just before his death at Peoria, April 7, 1896.

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McClure's Magazine for November will contain the first installment of a five or six part story by Rudyard Kipling. It is Kipling's first long story of American life, being a tale of stirring adventure among the Gloucester fishermen on the Grand Banks. A notable feature will be the interesting story of the introduction and development of the daguerreotype in America, illustrated with original daguerreotype portraits of Webster, Edward Everett, Jenny Lind, and others, from the collections of Peter Gilsey, of New York, and Josiah J. Hawes, of Boston. There is an account of Alma-Tadema, his paintings, and his London home. Miss Tarbell will tell the story of Lincoln's nomination in 1860.

The November Century will contain an article by Ernest Ingersoll on "Election Day in New York," illustrated by a new artist, Jay Hambidge. His pictures are said to be very striking.

In the November number of the Atlantic Monthly, Charles Egbert Caddock will begin a novel of Tennessee Mountain life, which, however, is by no means confined to mountaineers, and brings in dramatic contrast to the queer life of this community the conventional society of the West,—a novel full of power as well as of picturesque charm, which is called "The Juggler."

The November Forum will contain: "As Maine Goes, so Goes the Union,"—a trenchant article by the Hon. Thomas B. Reed, whose drift is perhaps sufficiently indicated by its title. Mr. Edward P. Clark under the title "The Solid South Dissolving," contributes an interesting study of the way in which the South grew from normal divisions into solidity, and the way in which that solidity is now disappearing—a very timely and suggestive paper.

Tosti has hitherto been known only as the writer of some of the most famous songs known to musical people. He has now written his first purely instrumental composition, a minuet for

the piano, which The Ladies' Home Journal has secured and will publish in an early issue.

G. P. Putnam's Sons have in press a new edition of "The Last Days of Knickerbocker Life in New York." By the late Abram C. Dayton. To be fully illustrated.

"The Progress of the World," in the November Review of Reviews, is largely devoted to the political situation, but also furnishes a convenient summary of the latest developments of the Turkish question and other problems in international relations.

The Rev. Dr. Lyman Abbott contributes a calm and dispassionate "Summing up of the Vital Issues of 1896." The frontispiece is a map of the Hon. W. J. Bryan's wonderful stumping tour of 20,000 miles up and down the country, from the Missouri River to the Atlantic seaboard.

"Little girl," said the lady who was passing, "doesn't it worry your mamma dreadfully to hear you crying so hard?" "Course it does!" howled the little girl. "That's why I am crying. Boo-hoo! Boo-hoo!"—Chicago Tribune.

POSTPONEMENT OF THE THIRD ANNUAL CONVOCATION OF MOTHERS.

The Third Annual Convocation of Mothers, held under the auspices of the Chicago Kindergarten College, has been postponed to November 11-12-13. Delegations expecting to attend, please notice.

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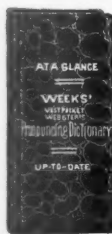
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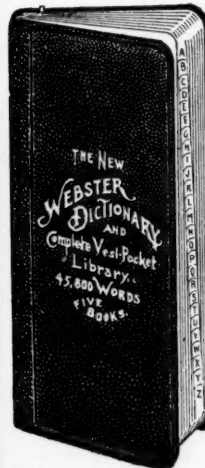
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